

Folic Acid

Reducing Folic Acid-Preventable Neural Tube Defects

What Is the Problem?

- Each year in the United States, there are 3,000 pregnancies affected by spina bifida or anencephaly, which are neural tube defects (NTDs) caused by the incomplete closing of the spine and skull.
- In the United States, Hispanic women continue to have higher rates of neural tube defects than non-Hispanic white women, and rates of spina bifida are higher among Hispanic women whose primary language is Spanish.
- Globally, there are more than 300,000 babies born with neural tube defects each year.



What Do We Know?

- If a woman has enough folic acid in her body *before and during pregnancy*, it can help prevent major birth defects of the baby's brain and spine. Women who are capable of becoming pregnant need 400 micrograms (mcg) of folic acid every day.
- Folic acid is important because it can help prevent major birth defects of the baby's brain and spine (anencephaly and spina bifida). Spina bifida is a condition that affects the spine and is usually apparent at birth. Anencephaly is a serious birth defect in which a baby is born without parts of the brain and skull. Unfortunately, almost all babies born with anencephaly will die shortly after birth. Both spina bifida and anencephaly are neural tube defects (NTDs).
- For folic acid to help prevent some major birth defects, a woman needs to start taking it at least one month before she becomes pregnant and continue taking it while she is pregnant.
- By 1998, folic acid fortification of cereal grains labeled as enriched was fully implemented in the U.S., preventing an estimated 1,000 neural tube defects each year.
- Folic acid programs have been shown to be cost-effective in countries with varying levels of economic development. In the U.S., fortification of cereal grain products labeled as enriched

Did you know?

In the U.S. an estimated 1,000 more babies a year are born healthier since fortification.

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has resulted in \$4.5 billion in direct costs saved over the past decade, and for each dollar invested in fortification, more than \$45 in medical costs have been saved.

What can we do?

- Staple foods in Hispanic communities, such as tortillas and other products made from corn masa flour, are not included in the current FDA fortification regulation. Folic acid fortification of corn masa flour could selectively reach Mexican American women and have little impact among other race/ethnicities. NCBDDD is working to reduce ethnic disparities in the occurrence of folic acid-preventable neural tube defects, in part, by working with others to allow folic acid to be added to corn masa flour.
- Building on the success of preventing neural tube defects through folic acid fortification in the U.S., NCBDDD is working to strengthen and expand the reach of global folic acid fortification to prevent infant death and childhood disability.

Accomplishments

- NCBDDD identified countries with the high burden of neural tube defects in order to prioritize a strategy to eliminate folic acid-preventable neural tube defects globally.
- As part of its Global Initiative to Eliminate Folic Acid-Preventable Neural Tube Defects, NCBDDD began collaborations with the World Health Organization Regional Office of South-East Asia (WHO-SEARO) to develop a South-East Asia regional strategy for prevention of birth defects to reduce infant mortality. This strategy will help member countries develop and strengthen national birth defects prevention efforts.
- NCBDDD contributed toward efforts to reduce racial/ethnic disparities in NTD rates in the U.S. by providing technical assistance in the development of a food additive petition to fortify corn masa flour (CMF) with folic acid to the CMF Partner Group. The CMF Partner Group includes March of Dimes, Spina Bifida Association, GRUMA Corporation, American Academy of Pediatrics, Brigham Young University, Latin America/DSM Nutritional Products, University of Georgia, and the Council of La Raza. NCBDDD provided assistance in three major areas: safety, intake, and potential public health impact of CMF fortification. The CMF Partner Group plans to submit the petition to the U.S. Food and Drug Administration in 2012.



Global Initiative to Eliminate Folic Acid-Preventable Neural Tube Defects Expert Group Meeting



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Looking to the future

- NCBDDD will continue to strengthen in-country and regional capacity for tracking birth defects in the South-East Asia region. Plans include:
 - Developing a manual to track birth defects including NTDs and other external birth defects. The manual can be used by low – and middle-income countries for the development and oversight of a country-based birth defects tracking systems.
 - Conducting training on tracking birth defects in South-East Asia in April 2012 with WHO-SEARO.
 - Collaborating, with WHO-SEARO to convene a National Program Managers meeting with Ministries of Health in March 2012 in Thailand to finalize and approve a regional strategic framework for birth defects prevention.
 - Collaborating with WHO-Headquarters to convene a technical expert meeting in Atlanta, Georgia in 2012 to develop a framework for determining an optimal blood folate concentration for NTD prevention.
- Strengthening capacity in the field to accurately monitor blood folate concentrations is an important element of global fortification efforts to prevent neural tube defects. In 2012, NCBDDD will provide funding to support the development of easier, more sensitive, and inexpensive methods to better monitor blood folate concentrations. New field laboratory methods can ultimately be used in all regions where access to laboratory support is limited, for example in more isolated areas of the South-East Asia Region.

Notable 2011 NCBDDD Scientific Publications

- Hamner HC, Cogswell ME, Johnson MA. (2011). **Acculturation factors are associated with folate intakes among Mexican American women.** J Nutr, 141(10):1889-1897.
- Yeung LF, Cogswell ME, Carriquiry AL, Bailey LB, Pfeiffer CM, Berry RJ. (2011). **Contributions of enriched cereal-grain products, ready-to-eat cereals, and supplements to folic acid and vitamin B-12 usual intake and folate and vitamin B-12 status in US children: National Health and Nutrition Examination Survey, 2003-2006.** Am J Clin Nutr, 93(1):172-185.

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